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Statistical Bulletin

METROPOLITAN LIFE INSURANCE COMPANY

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Reduction in War Wound Fatalities

THE remarkable advances in medicine and surgery since the first World War are now paying huge dividends in saving the lives of soldiers wounded in combat. Outstanding discoveries contributing to this are the sulfa drugs, use of blood plasma, and new anesthetics.

It is still too early to get a detailed picture of results obtained during the present war in treating the wounded. Such facts are not likely to be published until after the end of the war. For a great variety of reasons, moreover, gross statistics of wound fatalities are of little value in measuring the achievements of our military physicians. Thus, advances in military technology and the greatly changed type of warfare resulting in part from them, have had significant effects. Among the more important of such technical advances are the greater use of planes, tanks, and other mechanized equipment and the creation of deadlier weapons and projectiles, especially heavy bombs and incendiary bombs. Consequently, wounds suffered by fighting men today are likely to be both more numerous and more severe. Finally, the better organization of medical services in the field today probably results in the inclusion among the wounded of some men who, in previous wars, would have been recorded as killed in action because they died of their wounds before they were found.

Despite all this, definite indications of improvement in wound fatality rates are available from scattered sources. The only general experience yet published consists of preliminary data on our Army casualties up to December 1942. There were a total of 4,104 wounded, of whom 156 died, giving a fatality rate of approximately 4 percent. The gross fatality rate in the American Army in the first World War was 7.7 percent, and in the British Army on the Western front, 7.6 percent. Limited experiences in our forces during the present war, which may be cited, are the gross rate of 3.8 percent recorded in one of our large medical units at Pearl Harbor in December 1941, and the rate of less than 1 percent among Navy and Marine casualties in the first three months of fighting in the Solomons last year. It should be noted that all these figures exclude men killed in battle or dying of wounds before medical aid reached them.

As regards specific sites of injuries, it is possible now to quote only a

few examples. The mortality from abdominal wounds in previous wars has usually been higher than 50 percent, and for certain types of such wounds much higher. In the Solomons fighting the remarkably low figure of less than 5 percent has been reported for our men receiving abdominal wounds. The fatality rate from wounds of the chest cavity, which in former wars has frequently exceeded 25 percent, was reduced in one British medical unit to approximately one fifth of that figure among such casualties evacuated from Dunkirk. Similar accomplishments by the medical services of the Russian Army have also been reported.

The relative contribution of various medical advances in reducing wound fatalities cannot yet be evaluated. It is notable, however, that wound infections and gas gangrene are relatively infrequent in the present war largely as a result of the routine use of sulfa drugs. Each man in our combat forces carries a supply of such drugs and has been instructed how to use them in case he is wounded or injured. Tetanus has been practically eliminated by the routine protection of our men with tetanus toxoid. British troops in France in 1914 alone experienced 183 fatalities from tetanus complicating gunshot wounds. This was about 5 percent of all deaths from wounds. In contrast, among wounded troops evacuated from Dunkirk, only a few cases were recorded, all of them among troops not immunized against the disease. Shock and hemorrhage —important factors in the high mortality from severe wounds in earlier wars—are now successfully combated by use of plasma for transfusions of wounded men in the field. Prompt injection of sedative drugs in the field has also reduced the danger of shock. In many cases these measures have likewise made it possible to defer surgery until the wounded men could be transported away from the fighting zone to base hospitals where more adequate surgical and nursing care could be given. Where necessary, men have been flown long distances and, in fact, some of those wounded in North Africa were being treated in the United States only a few days later.

New methods of treatment of burns have largely solved the problem created by the increased frequency of such injuries resulting from incendiary bombs, high explosives, and gasoline and oil fires in this war. Consequently, recovery is frequent even from extensive burns received in action, whereas previously such wounds were usually fatal. Today's favorable result is due to the use of plasma (to control shock), sulfa drugs, and other new remedies of the last two decades, and also to improved surgical methods.

The outstanding successes of modern war medicine will be of enduring benefit. For lessons now being learned on the battlefield and in military hospitals will be widely applied to civil practice in the postwar years. These medical advances, which are stimulated by military necessity, will constitute one of the important gains from the war.

The Hospital's Place in the Public Health Program

IN THESE critical war days our hospitals occupy a position of importance as never before. Few persons realize that, as constituted at the present, the modern hospital is essentially a development of the 20th century. Literally, the word hospital means "guest house," and the first institutions so named were founded in the Middle Ages as temporary retreats for homeless and friendless persons too ill to take care of themselves. There was little attempt or pretense to give medical treatment. As a matter of fact, barely a century ago hospitals were generally little better equipped to take care of the sick and injured than were these asylums of the Middle Ages. Even though American hospitals about the middle of the last century were, on an average, better than contemporary European institutions, their general condition was deplorable. Their mortality record was appalling. It was not uncommon for a patient admitted for one disease to contract and succumb to a more serious malady in the hospital.

In these circumstances it is not surprising that the growth in the number of hospitals was rather slow. Even as late as 75 years ago the entire country had less than 150 hospitals, of which one third were institutions for the insane. Today, according to the latest survey by the American Medical Association, there are about 6,350 registered hospitals of various types in the United States. The service they render can be realized from the fact that in the course of a normal year one in every eleven persons in our entire population receives care in a hospital ward or private room. In 1941 the total number of inpatients was 11,596,000, and there were about an equal number of ambulatory patients in the outpatient departments. In addition, more than 1,400,000 babies were born in hospitals in that year.

But the modern hospital is much more than a place for the care of the sick. It has become the strategic center for the study of disease in all its manifestations, for the development of new methods of diagnosis and treatment, for undergraduate and postgraduate medical and nursing education, and for medical social service. The large, funded resources of many hospitals permit investment in a great variety of apparatus—some highly expensive—and the employment of many specialized technicians, in addition to the skilled professional staff of physicians. Consequently, more and more patients suffering from diseases requiring expert observations have been hospitalized. The modern hospital is likewise characterized by wonderful operative facilities and the skilled nursing care available. The general practitioner, therefore, has come to depend upon the hospital for a variety of services.

Of hardly less value to the community are the hospital's educational facilities, for which organized medi-

cine has set up certain prescribed standards. Not only is it a general requirement that every young physician receive hospital training before going into practice, but many hospitals, through so-called residencies, afford opportunities for continued study and experience in various specialties. An important function of the hospital, which is valuable both in education and research, is the checking of diagnoses by postmortem examinations. Altogether, about one in every four hospital deaths comes to autopsy, but in many of the larger institutions the proportion reaches 50 to 75 percent.

The general public today appreciates that the hospital is the best place for treatment of many conditions and especially of the more serious ones. Partly in consequence of this, but even more because of the considerable proportion of patients who are desperately sick or even moribund when admitted to the hospital, a high percentage of the Nation's deaths occur in these institutions. As shown in the accompanying table about 485,000, or more than one third of the 1,417,000 total deaths in the United States in 1940 were recorded in general and special hospitals. The figures in the table which tell the proportion of all deaths that take place in the hospital must, of course, not be confused with case-fatality rates in the hospital—that is, the mortality among its patients. In fact, the combined fatality rate for all causes, for all hospitals, based on the 11,600,000 inpatients, has been less than 5 percent. This is in sharp contrast to the very high rates of a century ago. Indeed, the present rates, as well as the general mortality from many causes, would probably be appreciably lower if more patients received early and adequate care and study in hospitals.

The proportion of the total deaths in the United States which occur in hospitals varies within wide limits for individual causes. It is particularly high for conditions requiring surgery, reaching a maximum of 88 percent for fatal cases of appendicitis —all too often the result of bringing the patient to the hospital too late. Diabetes also shows a rather high proportion, undoubtedly due to severe surgical conditions which frequently arise in this disease. The proportion is fairly high for tuberculosis—in this case because of the general policy to encourage institutional care for active cases. The figure for motor vehicle accidents also is considerably above average, indicating the frequency with which severely injured persons are brought to a hospital in an effort to save their lives.

Inasmuch as 60 percent of all white babies born in 1940 were delivered in hospitals, it is natural that the proportion of maternal deaths which occur in hospitals are of approximately the same order. The situation is seen in better perspective by the use of the maternal mortality rate which, among white women delivered in hospitals, was only 4 per 1,000 live births. This figure is remarkably low in

view of the fact that hospitals get more than their share of difficult maternity cases.

The ratio of deaths occurring in hospitals is high for certain communicable diseases, because in many localities their victims are required to be hospitalized. Thus, nearly two thirds of the deaths from cerebrospinal meningitis occur in hospitals, and about one half of the deaths from infantile paralysis.

It is not surprising that the lowest proportions of deaths occurring in hospitals are found among the degenerative diseases of later life. These deaths, it should be noted, occur chiefly among older people admitted for the treatment of late and serious complications.

As regards deaths occurring in mental hospitals, the proportion of deaths from syphilis is high, because numerous patients with syphilis of

PROPORTION OF TOTAL DEATHS, UNITED STATES 1940, WHICH OCCURRED IN HOSPITALS AND OTHER INSTITUTIONS. FOR SELECTED CAUSES.

CAUSES OF DEATH	TOTAL DEATHS IN U. S.		PERCENT IN SPECIFIED INSTITUTIONS			PERCENT NON-INSTITUTIONAL
	Number	Percent	Hospitals; General and Special	Mental Hospitals	Homes for Aged; Prisons; etc.	
ALL CAUSES, TOTAL	1,417,269	100.0	34.2	3.1	1.8	61.0
WHITE	1,231,223	100.0	35.0	3.1	1.8	60.1
COLORED	186,046	100.0	29.2	3.0	1.2	66.6
Cerebrospinal meningitis	694	100.0	67.7	0.6	0.7	31.0
Poliomyelitis	1,026	100.0	56.1	1.4	0.1	42.4
Syphilis	19,006	100.0	39.5	23.6	3.0	33.9
Tuberculosis, all forms	60,428	100.0	49.4	6.1	1.1	43.4
Pneumonia, all forms	72,368	100.0	40.0	5.2	1.6	53.2
Influenza	20,157	100.0	19.1	1.1	1.1	78.7
Ulcer of stomach and duodenum	8,948	100.0	68.2	1.8	1.0	28.9
Biliary calculi, etc.	7,883	100.0	72.6	1.4	0.4	25.7
Appendicitis	12,999	100.0	88.2	0.8	0.5	10.6
Hernia and intestinal obstruction	11,877	100.0	74.3	2.3	0.8	22.5
Diseases of prostate	8,775	100.0	66.1	1.1	1.1	31.7
Exophthalmic goiter	3,659	100.0	49.8	1.1	0.7	48.3
Diseases of ear, nose, throat	7,006	100.0	61.6	1.4	0.6	36.4
Cancer, all forms	158,335	100.0	38.2	1.6	1.8	58.3
Diabetes mellitus	35,015	100.0	42.7	1.7	1.4	54.2
Alcoholism	2,531	100.0	27.0	3.7	1.3	68.0
Cirrhosis of liver	11,286	100.0	45.6	1.6	1.4	51.4
Heart disease, all forms	385,191	100.0	21.3	3.3	2.3	73.0
Nephritis	107,351	100.0	24.1	2.0	2.2	71.7
Cerebral hemorrhage, etc.	119,753	100.0	22.8	2.4	2.5	72.3
Puerperal state	8,876	100.0	69.5	0.3	0.2	30.0
Premature birth; congenital malformations	45,489	100.0	59.8	0.4	0.2	39.7
Motor vehicle accidents	34,501	100.0	55.3	0.2	0.2	44.3
Other accidents	62,384	100.0	42.5	2.3	1.0	54.2
All other causes	211,731	100.0	34.9	3.6	1.4	60.1

SOURCE: U. S. Bureau of the Census. Vital Statistics—Special Reports, 1940; Vol. 14, Number 2, page 18.

the central nervous system—a common terminal phase of the disease—are admitted to such institutions. The proportion of deaths from tuberculosis and pneumonia also is above the general average, because great difficulty is experienced in keeping certain types of psychotic patients in good physical condition.

These facts are a timely reminder of the vital needs which our hospitals serve. Today, especially, they are working under most difficult conditions, owing to the withdrawal of doctors and nurses from civilian practice and to the shortage of personnel and materials. Urgent new needs have also arisen through the function which the hospitals are serving in connection with the war effort. Many special problems in war medicine are receiving study in our hospital laboratories. The provision for air-raid precautions and other war measures, together with the scarcity of hospital supplies of all kinds, have contributed to the rising difficulties and cost of administration. Another singular result of the war is that the very materially increased birth rate has overcrowded the maternity wards.

With all these factors before us, it is clear that we must adjust our wartime demands upon hospitals to the end that they may continue to contribute effectively to the Nation's health. It will be necessary to weigh carefully whether, in the existing emergency, the patient can, in the interest of all concerned, be better taken care of in the hospital, or whether he may be treated adequately at home. While this may involve certain inconveniences to the public, they will be cheerfully borne so that patients in most need of hospital services can get them.

The Foreign-Born Among Us

THE great majority of our inhabitants who have come from other lands have now been here for many years; they have adopted our ways of life, and have found them to their liking. Their contributions to the common welfare have been great, and they have helped to give us a better understanding of the countries from which they have come. Their influence, though not always realized, must have been considerable, in view of the high proportion which they have constituted of our population for many decades. For example, in the half century from 1860 to 1910 the foreign-born population was almost one sixth of the total white population of the country; since then the ratio has fallen sharply, and the outlook is that, within the not too distant future, their number and their proportion in the total will drop rapidly. At the same time there will be striking changes in their age constitution and in their ratio of males to females. The essential data regarding the age distribution are shown in the chart on page 8.

The foreign-born element in our population was at its peak in 1930,

numbering 14,000,000. By the time of our last census, in 1940, their number had fallen to just under 11,500,000, which was about 1/10 of our total white population. What their numbers will be in the future is problematic, for much depends upon our attitude toward immigration in postwar years. Gauging by present impressions and our experience in the years immediately following the last war, it seems most likely that immigration restrictions now in effect will be continued, or perhaps tightened. In that event, the foreign-born among us will fall to only 6,000,000 in 1960 and to barely 2,000,000 in 1980, when they will constitute only about 1½ percent of our total white population.* The numerical importance of the foreign-born will thus decline almost to the vanishing point in the course of the next generation or two. But the group from whom they originally sprung will have served their adopted country in no small way.

Looking back, marked differences are seen in the age distribution of our native-born and foreign-born populations; the differences in the future will be even more striking. During the period of our heavy immigration, from 1880 to 1920, more than half of our foreign-born were at the prime of life—in the ages from 20 to 44 years—whereas not much more than one third of our native-born fell within these ages. Since then the proportion of foreign-born at ages 20 to 44 has fallen rapidly, so that in 1940 they constituted less than one third of the total foreign-born, and the indication is that by 1960 only 5 percent of them will fall within this age range. Should immigration be curtailed drastically, only a negligible proportion of the foreign-born will be under age 45 in 1980; in marked contrast to this, about 60 percent of the native-born will be under 45.

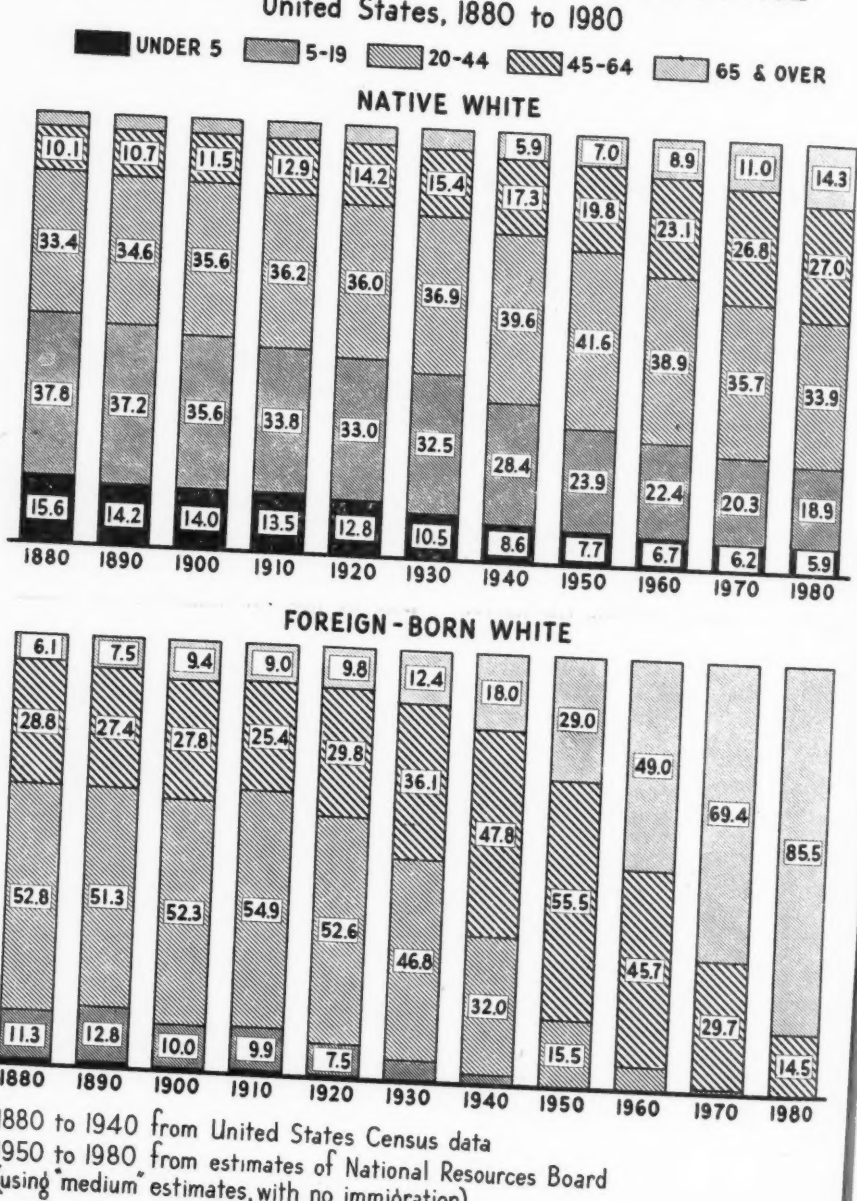
It follows, then, that our foreign-born population, unreplenished by newcomers, will undergo a rapid aging process far above that which will be experienced by the native-born. At all times the proportion of foreign-born at ages 65 and older was substantially greater than that of the natives. The foreign-born in this highest age bracket mounted from nearly 6 percent in 1880 to practically 12½ percent in 1930; by 1940 it had jumped to 18 percent. During the next few decades this trend will be accentuated. For example, in 1960 some 49 percent of the foreign-born will be 65 or older, and 85 percent will be at these ages in 1980. Among the natives, on the other hand, the proportion 65 years or older in 1940 was just less than 6 percent; it will be almost 9 percent in 1960 and a little more than 14 percent in 1980.

Along with the rapid aging of our foreign-born population, there will be an important change also in the ratio of males to females among them. This change is particularly

*Estimates for future populations were taken from "Population Statistics; No. 1, National Data," published by the National Resources Committee, October 1937, use being made of the "medium" estimates.

PERCENT DISTRIBUTION OF THE NATIVE WHITE AND FOREIGN-BORN WHITE POPULATION BY AGE

United States, 1880 to 1980



*1880 to 1940 from United States Census data
1950 to 1980 from estimates of National Resources Board
(using "medium" estimates, with no immigration)

19-42

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noticeable in the record of the past. While immigration into the United States was very heavy—more particularly, from 1880 to 1910—the excess of males over females among the foreign-born rose from 16 percent to almost 30 percent. This, of course, reflected the fact that immigrants were predominantly men. During this same period the native-born males were not quite 3 percent in excess of the females. From 1910 to 1940 the ratio of males to females fell for both the foreign-born and the native-born; at the end of that period there was an excess of 11 percent in males over females for the foreign-born, while among the natives the two sexes were practically equal in number. The prospect is that the coming decades will continue to see about equal numbers of men and women among the native-born. In the case of the foreign-born, however, the ratio of males to females will continue to decrease until the numbers for the two sexes are about equal in 1960; by 1980 the females will actually be in excess by more than 10 percent. For the males will die off at a more rapid rate than the females, since they have the higher mortality.

As the foreign-born among us decline, many of the features they have brought to our country will pass out of the picture. Foreign language newspapers and cultural societies have already begun to show this effect. We should be the losers if they disappeared entirely. Their presence has enriched our national life by giving it greater variety. In this situation it may be well to stress the study of foreign languages and cultures in our educational system. While these demographic changes are taking place and our people are becoming more homogenous in their way of life, we must at the same time widen our outlook and appreciation of the contributions that other nations and races have made to our national life.

Few Women Killed in Occupational Accidents

WOMEN have had, throughout the years, a much lower death rate from accidents than men in the United States, partly because relatively few of them have been employed in occupations involving serious hazards to life. In contrast with some 17,000 occupational accident fatalities among upward of 34,000,000 gainfully occupied men in the prewar year of 1940, the number of such deaths among more than 11,000,000 working women ran in the neighborhood of only about 300. Now that women are daily entering many occupations traditionally followed almost exclusively by men—some of a quite hazardous nature—concern may be felt over the prospect that a high price will have to be paid for this change through a substantial rise in the fatal-accident rate among employed women. Their newness to the various industrial fields would suggest that for a time at least their death

rates might exceed those prevailing among men in the same occupations, for inexperience is unquestionably a contributing cause of accidents.

There is, however, no real indication that the number of fatal occupational accidents among women is actually rising out of proportion to the increased numbers of women employed. The mortality records of the millions of women insured in the Industrial Department of the Metropolitan Life Insurance Company, for example, show an increase to 36 such deaths in 1942, as compared with an average of 29 annually in the period 1937 to 1941, inclusive. This is only about what might have been expected from the increase in the number of women employed in 1942. The toll of fatal occupational accidents among working women for the country as a whole was probably around 350 lives—still a relatively small casualty list.

Our insurance records indicate that even now only a small proportion of women workers are subjected to dangers approaching those to which men are exposed. One half of all the deaths among them from injuries arising out of and in the course of employment, were sustained in domestic and personal service activities. Most of the other accidents were among women employed in clerical, trade, and light manufacturing positions. Apart from a few deaths due to explosions in munitions plants, none of the deaths resulted from accidents in what are generally regarded as hazardous operations. The bulk of the male occupational deaths, in marked contrast, come from the construction, mining, railroad and other transportation industries, farming, and heavy manufacturing pursuits. While women are employed in some occupations connected with these industries, not many of them, apparently, are doing the more laborious and hazardous tasks. Then, too, it should be pointed out that where women have been taken on, many organizations have altered their work procedures to fit the jobs to the abilities and physical limitations of women. The heavier part of the work has been segregated and assigned to male workers or, where possible, is accomplished by mechanical means.

While it seems apparent, then, that women will not supplant men to a great extent in the most hazardous occupations, there is no doubt that very large numbers of them will be employed in operations involving more hazard than has been encountered ordinarily in women's work heretofore. Very likely there will be a measurable increase in the number of less-serious injuries among them. Fortunately, existing laws and standards developed over many years will operate to protect them. Safety men have been alive to the situation from the very beginning and, as we have already suggested, have introduced a number of measures specially designed to protect women. It is not too much to hope that something of all this will remain for the greater protection of men when they again take over their jobs.

Comparative Data on the Causes of Death Among Industrial Policyholders

The following table shows the mortality among Industrial policyholders for January 1943 and January 1942, together with the death rates for the years of 1942, 1941, and 1940.

DEATH RATES* PER 100,000 POLICYHOLDERS FROM SELECTED CAUSES. WEEKLY PREMIUM-PAYING INDUSTRIAL BUSINESS — METROPOLITAN LIFE INSURANCE COMPANY

CAUSES OF DEATH	ANNUAL RATE PER 100,000 POLICYHOLDERS*				
	January 1943	January 1942	Year		
			1942	1941	1940
ALL CAUSES—TOTAL	857.9	793.5	739.1	744.4	760.9
Typhoid fever	0.1	0.3	0.4	0.5	0.7
Measles	.3	.5	.5	.8	.3
Scarlet fever	.4	.4	.4	.4	.6
Whooping cough	1.6	.9	1.0	1.3	1.2
Diphtheria	.7	.6	.6	.7	.8
Influenza	8.5	6.3	4.2	7.8	7.9
Pneumonia (all forms)	52.8	37.0	29.4	30.5	35.5
Tuberculosis (all forms)	40.2	41.6	41.7	42.8	44.6
Tuberculosis of respiratory system	36.7	38.0	37.6	38.9	40.2
Syphilis	11.5	11.6	10.5	11.5	12.0
Cancer (all forms)	101.0	99.2	106.2	104.8	104.4
Diabetes mellitus	31.0	29.3	28.0	27.4	29.8
Cerebral hemorrhage	78.6	63.3	61.1	60.6	61.0
Diseases of the coronary arteries and angina pectoris	72.1	66.0	57.8	54.6	53.1
Other chronic heart diseases†	187.3	173.0	157.7	156.1	159.5
Diarrhea and enteritis	2.7	3.6	4.4	5.0	4.6
Appendicitis	4.3	5.5	5.9	7.4	9.3
Chronic nephritis	53.8	53.2	49.7	51.9	57.3
Puerperal state—total	4.0	4.3	4.5	4.8	4.9
Suicides	4.3	7.1	7.2	7.6	8.7
Homicides	4.3	3.6	3.7	3.6	3.7
Accidents—total	51.5	51.8	50.1	49.9	46.3
Home accidents	14.4	11.7	11.4	11.1	11.7
Motor vehicle accidents	13.6	24.2	16.8	20.8	18.2
War deaths	11.4	2.2	4.5	.2	.3
All other causes of death	135.4	131.9	109.8	114.1	114.3

*The rates for 1943 and 1942 are subject to slight correction, since they are based on provisional estimates of lives exposed to risk.

†International List (1940) titles 92, 93 (c), (d), (e), and 95.

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STATISTICAL BULLETIN
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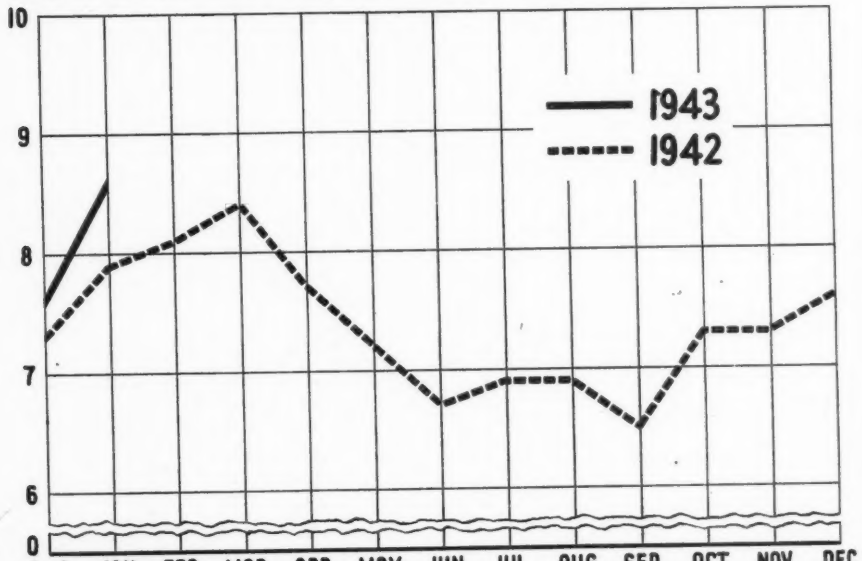
MORTALITY FROM ALL CAUSES

METROPOLITAN LIFE INSURANCE COMPANY
INDUSTRIAL DEPARTMENT, WEEKLY PREMIUM-PAYING BUSINESS

DEATH RATES PER 1,000 · ANNUAL BASIS (*Provisional*)



(DEC)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1942	7.9	8.1	8.4	7.7	7.2	6.7	6.9	6.9	6.5	7.3	7.3	7.6
1943	8.6											

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